Amendments to the Drawings:

The attached sheet of drawings includes changes to Figure 1. This sheet, which includes Figs. 1 and 2A, replaces the original sheet including Figs. 1 and 2A.

Attachment: Replacement Sheet

REMARKS

Claims 1-11 and 13-25 will be pending upon entry of the present amendment. Claims 1-4, 6, 8-10, 13, 18, and 19 are being amended. Claim 12 is being canceled. Claims 21-25 are new. No new matter is being submitted.

The applicants appreciate the indication that claims 13-20 are directed to allowable subject matter. Claims 13, 18, and 19 are being placed in independent form. Claims 14-17 depend on claim 13, new claim 25 depends on claim 18, and claim 20 depends on claim 19. Accordingly, claims 13-20 and 25 are in condition for allowance.

The applicants also appreciate the thorough analysis of the drawings, specification, and claims. A substitute specification (with a redlined version) is being submitted to make the changes suggested by the Examiner as well as other changes to employ proper idiomatic English. In addition, the drawings and claims are being amended to correct many informalities. No new matter is being submitted.

The drawings were objected to because of two informalities in Figure 1. Attached is a replacement sheet showing amendments to Figure 1 as suggested by the Examiner.

The abstract was objected to for the use of legal phraseology. The abstract is being amended as suggested by the Examiner.

The specification was objected to for failing to provide proper antecedent basis for the subject matter recited in claim 5. The substance of claim 5 is being added to the specification at page 7, lines 25-26 of the attached substitute specification.

The disclosure was objected to for an informality on page 3 and for the use of non-idiomatic English. As discussed above, the attached substitute specification includes many amendments intended to correct instances of non-idiomatic English.

Claims 2-4, 8-9, and 12 were objected to for various informalities. Claims 2-3, 6, and 8-11 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite. Claims 2-4, 6, 8-10, 13, and 18-19 are being amended as suggested by the Examiner. Accordingly, all pending claims are believed to particularly point out and distinctly claim the invention.

Claims 1, 4-6, 8, and 11 were rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,940,441 to Cranford, Jr. et al. ("Cranford") in view of U.S. Patent No. 6,240,131 to Cheng et al. ("Cheng").

Cranford and Cheng do not teach or suggest the invention recited in claim 1. Claim 1 recites a method that includes moving the position of a pole of an adaptive filter toward high frequencies at an increasing of attenuation of a line; and moving the position of a zero toward low frequencies at the increasing of the attenuation of the line. Cranford and Cheng do not teach or suggest such movements in opposite frequency directions in response to an increase in the attenuation of a line. Cranford repeatedly requires the pole and zero of his filter to maintain a fixed ratio to one another (See, for example, col. 6, lines 37-47 and col. 7, lines 62-65). Such a requirement of a fixed ratio of pole to zero would certainly teach one skilled in the art away from moving the pole and zero in opposite frequency directions.

Cheng does not teach the features of the claim 1 that are missing from Cranford or supply any reason to overlook Cranford's express teaching away from the invention. The applicants have found nothing in Cheng stating that, in response to an increase in line attenuation, a pole should or could be moved toward high frequencies while a zero should be moved toward low frequencies. The Examiner has pointed to general statements in Cheng indicating that a filter has a transfer function with poles and zeros and that the value of the filter's transfer function should be set to provide adequate compensation for filter line distortion.

For several reasons, such general statements in Cheng do not teach or suggest moving the pole and zero in opposite frequency directions. First, such general statements are far too vague to teach one skilled in the art that one should or could move the pole and zero in opposite frequency directions. Second, providing compensation for filter line distortion does not inherently move the pole and zero in opposite directions. Third, Cranford explicitly teaches one to compensate for filter line distortion by maintaining a fixed ratio between the pole and zero. In particular, Cranford states: "The fixed ratio of the poles and zeros of the filter provide the capability not only to compensate for the channel distortion, but at the same time, compensate for semiconductor process variations ..." (col. 6, lines 42-47). The general statements in Cheng cannot overcome the specific teachings of Cranford away from the claimed invention.

For the foregoing reasons, claim 1 is nonobvious in view of Cranford and Cheng.

Claims 4-6 depend on claim 1, and thus, are also nonobvious. In addition, claim 6 recites that the gain of the filter is increased after the pole and zero are moved. Cranford and Cheng do not teach or suggest increasing of the gain after moving a pole and zero. The Examiner notes that Cranford includes a voltage V_G on a gain control line 310 in Figure 3, but Cranford does not suggest increasing the gain or the voltage V_G after the pole and zero are moved. Accordingly, claim 6 is nonobvious for that additional reason.

Although the language of claims 8 and 11 is not identical to that of claim 1, the nonobviousness of claims 8 and 11 will be apparent in view of the above discussion.

Claims 7 and 10 were rejected under 35 U.S.C. § 103 as being unpatentable over Cranford and Cheng in view of U.S. Patent No. 5,878,417 to Baker et al. ("Baker").

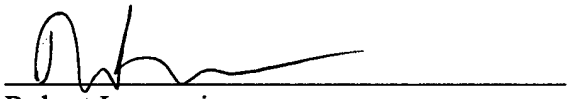
The cited prior art does not teach or suggest the invention recited in claims 7 and 10, which depend on claims 1 and 8, respectively. In particular, Baker does not teach or suggest the features of claims 1 and 8 that are missing from Cranford and Cheng. Baker does not appear to even mention a pole or a zero of a filter, or suggest that the pole should be increased and the zero should be decreased in response to increases in line attenuation. Baker employs an inverse filter having three weighted high-pass filters with weights that are used to compensate for differences in cable length and temperature/process variations without suggesting that the poles and zeros of the filters are driven in opposite frequency directions. Accordingly, claims 7 and 10 are nonobvious in view of the cited prior art.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

SEED Intellectual Property Law Group PLLC



Robert Iannucci
Registration No. 33,514

RXI:lmt

Enclosures:
Postcard
1 Sheet(s) of Drawings (Figures. 1-2A)
Substitute Specification
Redline Substitute Specification

701 Fifth Avenue, Suite 6300
Seattle, Washington 98104-7092
Phone: (206) 622-4900
Fax: (206) 682-6031

698936_1.DOC